OPERATOR HANDBOOK

**GUIDANCE
ON
ADAPTABLE PARAMETERS**

**DOPPLER METEOROLOGICAL RADAR
WSR-88D**

1 MAY 1997

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Preface

The WSR-88D radar is a highly complex, computerized radar system. The system includes thousands of adaptable parameters which allow the required operational, geographical, and meteorological flexibility needed to support the varied missions of the three Principal User Agencies.

With over 11,000 adaptable parameters available within the WSR-88D unit, centralized control over many of the system and meteorological parameters is required to ensure a baseline operational standard is met in support of the national radar network. However, many parameters were designed to fine-tune the WSR-88D for local operational needs. Therefore, Federal Meteorological Handbook Number 11 (FMH-11) has defined three Levels of Change Authority (LOCA) for adaptable parameter control. The hierarchy established by these LOCA was defined to ensure that authority for change is based on expertise and scope of impact while still allowing for operational flexibility.

The rapidly changing nature of the WSR-88D program necessitated the publication of an easily updatable, comprehensive document to describe, define, and provide guidance for adaptable parameters under the purview of each LOCA. To address this need, the specific parameters under each LOCA are defined in the WSR-88D Guidance on Adaptable Parameters Handbook series. The authority for the adaptable parameter baseline settings and LOCA defined in this publication series resides in FMH-11.

The WSR-88D Guidance on Adaptable Parameters Handbook series was designed for operational use by field personnel and system managers, and as supplemental materials for agency training developers. To fill this broad design mandate, the adaptable parameters handbook series is divided into three separate volumes: one each for the RPG, PUP, and RDA functional areas. Each volume addresses only those parameters applicable to, and accessible through that specific component of the WSR-88D system. The appropriate screen where the adaptable parameter can be changed is shown. Additionally, for each adaptable parameter, the specific LOCA and any relevant information available is provided. As a baseline document, this handbook should be kept in a location that is easily accessible to operators and system managers. It is recommended that site specific adaptation changes be documented and posted to the appropriate section of this handbook.

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Chapter 1

Overview

1.1 Introduction

The WSR-88D system was designed such that modifications to the hardware and software operating characteristics can be made through changes in adaptable parameter settings. These changes allow for system optimization based on meteorological, climatological, and regional variations, as well as user preferences.

Recognizing the rapidly changing operational environment and the Federal Meteorological Handbook Number 11 (FMH-11) update cycle, the Doppler Radar Meteorological Observations Working Group (DRMO-WG) chairman initiated the development of more responsive and user oriented adaptable parameters guidance documents. The WSR-88D Guidance on Adaptable Parameters Handbook Series, RDA, RPG and PUP, documents were designed to meet these requirements.

1.2 Policy

As mandated by the DRMO-WG, the WSR-88D Guidance on Adaptable Parameters Handbook, PUP has primacy in the area of PUP adaptable parameter guidance and supersedes all other adaptable parameter guidance, memos, and pamphlets issued prior to its publication. This handbook may be supplemented by agency or regional memoranda to clarify policy pertaining to parameters under Agency level of authority.

This document, as directed by FMH-11, Part A, serves to identify the specific adaptable parameters that fall under each Level of Change Authority (LOCA). It also defines the Principal User Processor (PUP) baseline adaptable parameter settings required to support the national radar network and provides guidance on certain Agency level parameter changes, including parameter impacts and implications.

1.3 Levels of Change Authority (LOCA) Philosophy

A hierarchy has been established to ensure maximum flexibility while maintaining data and operational integrity of the WSR-88D units throughout the nation. This hierarchy is divided into three distinct levels: Operational Support Facility (OSF) to address engineering, meteorological, and scientific parameters; Unit Radar Committee (URC) for changes that only affect the operation of their particular WSR-88D unit; and Agency to control parameters that only affect local operations. Each level controls those engineering, operational, and meteorological parameters that best apply to its level of expertise and responsibility.

Adaptable Parameters under the Agency LOCA affect local operations only, and therefore, may be adjusted to best assist the operations at each PUP. Occasionally, an Agency will request that certain parameters meet specific standard recommendations. Under these conditions, all PUPs controlled by that Agency must maintain the recommended parameter settings.

The definition for each level of change authority is provided in Chapter 2. Additionally, Chapter 2 lists each PUP adaptable parameter designated with a LOCA of Agency and provides a cross-reference location to the appropriate chapter and section.

> # NOTE
>
> There are no PUP Adaptable Parameters under the URC LOCA.

1.4 Document Design Characteristics

The "WSR-88D Guidance on Adaptable Parameters Handbook, Volume II, PUP" is designed to facilitate ease of use. The volume is divided into chapters, and each chapter is further subdivided into sections. Each significant adaptable parameter is addressed in an individual section. For example, the system configuration parameters chapter is subdivided into 16 individual sections. Additionally, the page numbering for the document is not sequential throughout the document, but rather the page number identifies the chapter and page sequence within the chapter (i.e., the third chapter, fourth page is numbered 3 - 4).

For presentation in this document, the PUP adaptable parameters were divided into three groupings: Adaptation Data Parameters, Extended Adaptation Data Parameters, and System Configuration Parameters. Each group is addressed in an individual chapter. The sections within each chapter are arranged in the same order as presented at the Applications Terminal. These sections provide an exact copy of the appropriate Applications Terminal screen showing each adaptable parameter accessible through the applications software. The baseline adaptable parameter settings are provided for reference.

1.4.1 Highlighting Agency LOCA Parameters

All adaptable parameters, unless explicitly defined as Agency LOCA in Chapter 2 of this document, or changes or updates to this document, are under the OSF LOCA.

In all subsequent chapters, adaptable parameters under the Agency LOCA are highlighted in one of two ways:

In the case where every parameter addressed within a given section is under the Agency LOCA, the appropriate LOCA is provided in the Section Title (e.g., **3.4 RPS Lists - Agency LOCA).**

When only selected adaptable parameters within a section are under the Agency LOCA, the specific parameters are outlined by a box (See Figure 1.4-1).

```
                      NARROWBAND LINE DEFINITION EDIT SCREEN      Page 1 of 2
COMMAND:
FEEDBACK:
(M)ODIFY, <LINE#>                            (C)ANCEL ALL
Press function key F1 or F2 to exit and save all changes.


LINE    LINE    COMMS        LINE     BAUD     LINE     PORT      DIST     MAXCNCT
 NO     NAME    OPTION       CLASS    RATE     TYPE   PASSWORD*  MODE**   MINUTES*


  1     J01      Y           ARPG    14400    DEDIC
  2     XXXX                 NONE
  3     J03      Y           NARPG    9600    DIALOUT
  4     XXXX                 NONE
  5     XXXX                 NONE
NOTE: Press F5 (HELP) for entry selection definitions. Press F2 to return.
* For Dial-In Other User Only        ** For Dial-In or Dedicated Other User
```

Figure 1.4-1 Example of Highlighted Adaptable Parameter Values

1.4.2 Supplemental Information

When information is available concerning possible impacts that changes to these parameters will have on the system or algorithm performance, a brief explanation is provided. If additional references are available, pertinent papers and articles are cross-referenced.

1.5 Adaptable Parameter Change Process

1.5.1 Urgent Changes to OSF Controlled Adaptation Data Values

Under certain conditions in order to best support local warning and forecast capabilities, individual sites may need to quickly change the value of site-specific parameters which are controlled at an OSF LOCA. The need for change may result from local knowledge of radar performance, or of other geographic, seasonal, and/or climatological effects. The timeliness of these changes may preclude the normal configuration change process procedures. In these cases, the site may submit an immediate parameter change request to the OSF using the following guidelines:

Requests may only be made by the Chairperson of the WSR-88D Unit Radar Committee with the concurrence of the URC voting members. These requests will be made in writing to the Director of the OSF. The OSF will send a copy of the change request to the HQ AFWA/ XPPM, HQ NWS W/OSO112, and FAA Integrated Product Team (IPT), AND-440.

The Adaptable Parameter Working Group (APWG) technically evaluates the immediate parameter change request within 2 working days of receipt and then responds to the OSF Director.

The OSF Director, who is the signatory authority for delegating to sites the responsibility to make immediate changes to OSF level parameters, responds in writing to the originator of

the immediate parameter change request using standard agency procedures. In addition, the Director will deliver copies of the response to OSF Configuration Management (CM) and to the agency WSR-88D focal points.

The requesting site can implement the change upon receipt of an affirmative response from the OSF Director.

1.5.2 Routine Changes to OSF Controlled Adaptation Data

The triagencies may request changes to OSF-controlled adaptable parameter values. General guidance for DOC (NWS) and DOD Requests for Change (RC) is provided below.

NWS-originated parameter RC will first require the requesting office to submit its request to their regional headquarters WSR-88D focal point. If approved, the regional headquarters will forward the RC to the NWS NEXRAD Committee (NNC) for review. The NNC will forward approved requests to the OSF by memo to the OSF Director, for the attention of the OSF CM Section.

DOD-originated parameter requests for change should be submitted on AF FM 3215, C4 Systems Requirement Document. The form is submitted for base approval, MAJCOM approval, then AWS approval. If approved at all levels, HQ AFWA/XPPM will submit the CSRD as a RC to the OSF Director, for the attention of the OSF CM Section. USN and NEXRAD representative, in the Configuration Change Request (CCR) for mat for submission to the OSF Director.

FAA-originated parameter change requests should be submitted as standard case files on FAA Form 1800-2. Forward the case file to AOS-250, for OSF processing and coordination.

Requests for Change received by the OSF Director are forwarded to the OSF CM Section for processing into the Configuration Change Request (CCR) format. The CCR is forwarded to the APWG for their review and recommendation. If approved by the APWG, a recommendation is then forwarded to members of the OSF Configuration Control Board and to the OSF Director, who will approve or disapprove the recommended change. If the Director approves the change, the OSF CM Section will implement the change.

Chapter 2

Levels of Change Authority

2.1 Introduction

Chapter 2 defines the responsibilities of each level of change authority. Additionally, each Principal User Processor (PUP) adaptable parameter designated with a Level of Change Authority (LOCA) of Agency is provided. **By design, those adaptable parameters not specifically defined as Agency LOCA in this document fall under the jurisdiction of the OSF LOCA**. The listings also cross-reference the location (chapter and section) where the parameter can be found in subsequent chapters.

2.2 Levels of Change Authority Definitions

2.2.1 Operational Support Facility

The Operational Support Facility (OSF) through the Adaptable Parameter Working Group (APWG) is authorized to determine the general validity and range of adaptable parameter values for changes that involve technical and scientific characteristics of WSR-88D data acquisition and algorithmic processing. In addition, the OSF shall be authorized to determine, specifically, the values of the aforementioned default adaptable parameter values for WSR-88D equipment owned by Department of Defense, Department of Transportation, and Department of Commerce. Since the APWG shall remain subordinate to the NEXRAD Program Management Committee (PMC), the OSF level of change authority shall reflect the PMC's position on triagency policy in WSR-88D operations.

2.2.2 Unit Radar Committee

The Unit Radar Committee (URC) is authorized to change the values of WSR-88D adaptable parameters, and establish adaptation parameter policy for the principal users within the URC, insofar as these changes affect only the operation of the URC's WSR- 88D system. **None of the PUP adaptable parameters is under the authority of the URC**.

2.2.3 Agency

The Department of Defense (DOD), Department of Transportation (DOT), and Department of Commerce (DOC), each is authorized to change the values of adaptable parameters and establish WSR-88D adaptation parameter policy in order to meet their agency-specific mission requirements and criteria. With few exceptions, these adaptable parameters have been delegated down to the site level. Changes that a single agency are authorized to implement may involve user passwords and certain telecommunications settings. Table 2.3-1 identifies the adaptable parameters that the DOD strongly recommends as standard values for its sites. Tables 2.4-1 and 2.4-2 identify adaptable parameters which local sites are authorized to implement.

2.3 Agency LOCA

To diminish any confusion during flight weather briefings, the Department of the Air Force requires all units to maintain standardized products and associated color palettes. Table 2.3-1 provides a listing of the PUP adaptable parameters controlled by the DOD which may not be adjusted by Air Force sites.

Table 2.3 - 1:

Parameter	Section
Product to Color Mix Pairings	4.3

2.4 Agency LOCA Adaptable Parameters Delegated to Local Sites

This section provides a listing of the PUP adaptable parameters where the Agency has delegated change authority to local sites. Table 2.4-1 lists the adaptable parameters for which local sites need control. Table 2.4-2 lists the adaptable parameters that will change rarely although still under the change authority of local sites. Section 2.3 describes the exceptions to Table 2.4-2. Section numbers are provided to identify where additional information about the parameter can be found in subsequent chapters of this document.

Table 2.4 - 1: Routinely Changed Adaptable Parameters

Parameter	Section
Alert Processing	3.5
Background Map Associations	3.6
Background Map Version	3.2
Overlay Associations	3.7
RPS Lists	3.4
SCIT HDA and TVS Display Parameters	4.8

Table 2.4 - 2: Rarely Changed Adaptable Parameters

Parameter	Section
Cursor Home Location	3.8
Geographic Preset Center Location	5.4
Maps to PUES and Other Users	5.16
Narrowband Line Definition	4.7
Other User List	4.5
Overlay Colors	5.13
Overlay Precedences	4.2
Overload Warning Thresholds	5.15
Password	4.9
Preselected RPGs	5.14
Product to Color Mix Pairings	4.3
PUES Distribution Product Priorities	5.9
RCM Edit Warning Times	4.4
Special Symbol Font Definitions	5.11
Task Priorities	5.7
WER Plane Assignment	3.3

NOTE

All adaptable parameters, unless explicitly defined as Agency LOCA in Chapter 2 of this document, or changes or updates to this document, are under the OSF LOCA.

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Chapter 3

Adaptation Data Parameters

3.1 Introduction

This chapter addresses the adaptable parameters that impact local WSR-88D PUP operations, product acquisition and display. The parameters contained in this chapter are designated as Agency Level of Change Authority (LOCA) and many should be routinely modified to address changing meteorological conditions and operational requirements.

3.2 Background Map Version - Agency LOCA

Background maps may be edited to display areas of local interest and to assist the operator in locating specific features. The Background Map Version Edit Screen provides the opportunity to select which map version is desired. A "M" (for modified) is placed under a map number assignment when use of a modified map is desired. An "O" signifies the map is the original version.

```
                  BACKGROUND MAP VERSION EDIT SCREEN
COMMAND:  C,B
FEEDBACK:
Specify an "O" to use the original map and an "M" to use the modified map.
                          1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 3
MAP NUMBER:   1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2
            ----------------------------------------------------------------
VERSION:      O O O O O O O O O O M O O M O M O
                          MAP NUMBERS AND MAP NAMES
                          ------------------------
 1.  State Lat/Lon       9.  Airway Low            17.  County Names
 2.  County             10.  Navaid               18-32.  Not Defined.
 3.  Highway            11.  Warning Area
 4.  River              12.  Military Operations Area
 5.  River Basin        13.  Restricted Area
 6.  LFM Grid           14.  Prohibited Area
 7.  Airport            15.  Radar Sites
 8.  Airway High        16.  City
```

Figure 3.2-1

3.3 WER Plane Assignment - Agency LOCA

The Weak Echo Region (WER) Plane Assignment Edit Screen determines the eight WER planes which will be received when a request for the WER product is made from the Applications Terminal. These eight planes will also be the defaults for a graphic screen request.

```
                    WER PLANE ASSIGNMENT EDIT SCREEN
COMMAND:  C,W
FEEDBACK:
Enter elevation number from 1 (lowest) to 20 (highest) and press RETURN.
     PLANE    PLANE    PLANE    PLANE    PLANE    PLANE    PLANE    PLANE
       1        2        3        4        5        6        7        8
      --       --       --       --       --       --       --       --
       1        2        3        4        5        6        7        8
Note: This determines the WER Plane assignments if a WER Product request is
      made from the alphanumeric terminal, or the defaults for a graphic
      screen request for WER. Blanks may be entered for fewer than 8 plane
      assignments.
```

Figure 3.3-1

3.4 Routine Product Set Lists - Agency LOCA

Each associated PUP has the capability of storing up to 10 Routine Product Set (RPS) lists in the Adaptation Data files (A-J). An additional RPS list, the "current" or "active" list, contains a list of products that the RPG generates each volume scan for that associated PUP.   Editing changes to the current RPS list follow the same procedures as editing changes to RPS lists A-J, except edits are performed through the Routine Product Set menu instead of the Adaptation Data menu. Associated PUPs are currently limited to 20 products on an RPS list (50 products at an RPGOP).

Design RPS lists A and B with products needed for Precipitation Mode and Clear-Air Mode, respectively, as these lists will be automatically downloaded upon a weather mode change. The remaining RPS lists, C-J, will contain products designed to fit a variety of weather situations. These adaptation data RPS lists contain different combinations of products in order to sample and interpret changing weather situations. No predetermined list will always do the job; some product overlap is necessary in order to keep editing to a minimum.

Upon a PUP shutdown and restart from the Control menu (C,S,I or N for shutdown and C,RES to bring up the PUP), the current RPS list is overwritten with list A or B, depending on which weather mode the WSR-88D is in. Following a normal PUPDOWN and PUPUP, the current RPS list is preserved.

3.4.1 Mode A (Precipitation) RPS List

The Adaptation Routine Product Set list A will be automatically invoked as the current RPS list when there is an automatic or manual switch from Clear-Air Mode to Precipitation Mode. The products on this list may vary according to the requirements of a specific site.

```
                    ADAPTATION DATA RPS EDIT SCREEN (ID: A)       Page 1 of 3
COMMAND:  AD,R,A,E
FEEDBACK:
(M)ODIFY, <LINE#>, <prod-name>          (D)ELETE, <LINE#>
(I)NSERT, <LINE#>, <PROD-NAME>          (C)ANCEL ALL
Press function key F1 or F2 to exit and to save all changes.
     PROD DTA                                AUT REQ REQ OTH PUES AUT
LN   NAME LVL  RES  SLICE  PARAM 1  PARAM 2  DSP FRQ PRI USR DIST ARC
--   ---- ---  ---  -----  -------  -------  --- --- --- --- ---- ---
--   ---- ---  ---  -----  -------  -------  --- --- --- --- ---- ---
 1   R     16  .54   0.5                      L   1   H   N   N    N
 2   R     16  1.1   0.5                      L   1   H   N   N    N
 3   V     16  .54   0.5                      R   1   H   N   N    N
 4   CRC       .54                            L   1   H   N   Y    N
 5   SRM            0.5                        R   1   H   N   N    N
 6   SW     8  .54   0.5                      R   1   H   N   N    N
 7   R     16  .54   1.5                      L   1   H   N   N    N
 8   V     16  .54   1.5                      R   1   H   N   N    N
```

Figure 3.4-1

3.4.2 Mode B (Clear-Air) RPS List

The Adaptation Routine Product Set list B will be automatically invoked as the current RPS
list when there is a switch from Precipitation Mode to Clear-Air Mode. The products on this
list may vary according to the requirements of a specific site.

```
                    ADAPTATION DATA RPS EDIT SCREEN (ID: B)       Page 1 of 3
COMMAND:  AD,R,B,E
FEEDBACK:
(M)ODIFY, <LINE#>, <prod-name>          (D)ELETE, <LINE#>
(I)NSERT, <LINE#>, <PROD-NAME>          (C)ANCEL ALL
Press function key F1 or F2 to exit and to save all changes.
     PROD DTA                                AUT REQ REQ OTH PUES AUT
LN   NAME LVL  RES  SLICE  PARAM 1  PARAM 2  DSP FRQ PRI USR DIST ARC
--   ---- ---  ---  -----  -------  -------  --- --- --- --- ---- ---
--   ---- ---  ---  -----  -------  -------  --- --- --- --- ---- ---
 1   R     16  .54   0.5                      L   1   H   N   N    N
 2   R     16  1.1   0.5                      L   1   H   N   N    N
 3   SRM            0.5                        R   1   H   N   N    N
 4   V     16  .54   0.5                      R   1   H   N   N    N
 5   SW     8  .54   0.5                      R   1   H   N   N    N
 6   R     16  .54   1.5                      L   1   H   N   N    N
 7   HI                                       L   1   H   N   Y    N
 8   SRM            1.5                        R   1   H   N   N    N
```

Figure 3.4-2

3.4.3 Additional Reference Material

Help for determining which products to include in the adaptation RPS lists is available in the following:

Doppler Radar Meteorological Observations, AF Supplement 1, Federal Meteorological Handbook No. 11, Part A, Department of the Air Force, Washington, D.C.

Andra, D., Preston, V., Quoetone, E., Sharp, D., and Spoden, P., 1994: An Operational Guide to Configuring a WSR-88D Principal User Processor, WSR-88D Operational Support Facility, Operations Training Branch, Norman, OK.

3.5 Alert Processing - Agency LOCA

The WSR-88D alerting function will search data fields and algorithm output data to identify any phenomena selected as alert criteria within the area designated by any associated PUP. (The sole exception being the MAX 1 HR PRECIP alert which is not restricted to the alert area definitions.) Upon detection of alert criteria being met, the alerting function notifies the affected PUP(s) both visually and audibly.

 The Alert Processing menu allows the operator to select the phenomena and the criteria for an alert. The operator selects up to ten phenomena for each of the two alert areas, an alert threshold code for each phenomenon, and yes or no to the request for the RPG to generate and distribute an alert-paired product. Each alert area is edited one at a time. A separate PUP menu (AD,A,T) lists the threshold code values. Note that the actual threshold code values as well as the product paired to a particular alert type are specified at the RPG Unit Control Position (UCP).

```
                    ALERT PROCESSING EDIT SCREEN
COMMAND:  AD,A,1
FEEDBACK:
For assistance, press help button.              CATEGORY CODES

     ALERT AREA 1        ALERT AREA 2     GRID GROUP         13. Prob Svr Hail
   ----------------    ----------------   1. Velocity        14. Storm Top
   CAT  THRESH SEND    CAT  THRESH SEND   2. Comp Refl       15. Max 1HR Precip
 # CODE  CODE  PROD    CODE  CODE  PROD   3. Echo Tops       16-24. Not Used
-- ----  ------ ----   ----  ------ ----  4. SWP
 1   2     3     Y      2     3     Y      5. Not Used        FORECAST GROUP
 2   6     4     Y      9     3     Y      6. VIL             25. Max Hail Size
 3   8     3     Y                                           26. MESO
 4  10     1     Y                        VOLUME GROUP       27. TVS
 5  15     2     Y                         7. VAD            28. Max Storm Refl
 6                                         8. Max Hail Size  29. Prob Hail
 7                                         9. MESO           30. Prob Svr Hail
 8                                        10. TVS            31. Storm Top
 9                                        11. Max Storm Refl 32-41. Not Used
10                                        12. Prob Hail
```

Figure 3.5-1

3.6 Background Map Associations - Agency LOCA

This menu specifies the maps displayed with a specific product each time that product is displayed at the PUP workstation. When executed, this command is effective immediately for the specified product, even those already in the PUP database. Keeping the number of maps to a minimum will reduce the time required to display (draw) the product.

```
                    BACKGROUND MAP ASSOCIATIONS EDIT SCREEN
COMMAND:  AD,B,19
FEEDBACK:
Place an "X" under the background maps to be associated with this product.
                        1 1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3 3
MAP NUMBER:    1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2
            ----------------------------------------------------------------
ASSOCIATION:  X X                     X        X X X
                            MAP NUMBERS AND MAP NAMES
                            ------------------------
 1.   State Lat/Lon      9.  Airway Low             17.   Polar Grid
 2.   County            10.  Navaid                 18.   RDA
 3.   Highway           11.  Warning Area           19.   City
 4.   River             12.  Military Operations Area  20.  County Names
 5.   River Basin       13.  Restricted Area        21-32.  Not Defined.
 6.   LFM Grid          14.  Prohibited Area
 7.   Airport           15.  Radar Sites
 8.   Airway High       16.  Range Ring
```

Figure 3.6-1

3.7 Overlay Associations - Agency LOCA

This menu specifies the overlays to accompany a specific product each time that product is displayed. Changes to overlay associations become effective immediately for the specified product.

```
                    OVERLAY ASSOCIATIONS EDIT SCREEN
COMMAND:  AD,O,38
FEEDBACK:
Place an "X" under the overlays to be associated with this product.
                              1 1 1 1 1 1 1
OVERLAY NUMBER:  1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6
               ------------------------------
ASSOCIATION:        X X X   X
                         OVERLAY NUMBERS AND NAMES
                         ------------------------
 1.  Hail Index                    9.  Severe Weather Probability
 2.  Mesocyclone                  10. Combined Shear Contour
 3.  Tornado Vortex Signature     11.  Current Cross Section
 4.  Storm Tracking Information    12 to 16.  Not Defined.
 5.  Annotations
 6.  Attributes
 7.  Alert Area #1
 8.  Alert Area #2
```

Figure 3.7-1

3.8 Cursor Home Location - Agency LOCA

The cursor home location is a location to which the cursor will move when the CURSOR HOME function is selected from the graphic tablet. Using this menu to define a prespecified Latitude/ Longitude for a cursor home location is easier than trying to find the exact location with the puck at the graphic tablet. For example, when editing background maps, determining where to display the features is vital. By entering the latitude and longitude, the operator is assured the cursor home position is defined at precisely the exact location desired. This function is executed from the Adaptation Data menu. The command "AD,C" <return> displays the current values for the latitude and longitude. The latitude/longitude are entered in decimal degrees with a minus (-) indicating southern latitude and western longitude.

```
                          ADAPTATION DATA MENU
COMMAND:  AD,C,
FEEDBACK: ADAPTATION DATA CURSOR HOME LAT/LON: 36.543,  -96.645
Enter command.
(R)OUTINE PRODUCT SETS, <RPS-ID>, (E)DIT *
                                 , (L)EFT DISPLAY RATE ***, <SECONDS>
                                 , (R)IGHT DISPLAY RATE ***,<SECONDS>
                                 , (RE)PLACE WITH, <RPS-ID> [R for current list]
(A)LERT PROCESSING, <ALERT-AREA> *
                  , (T)HRESHOLD VALUES
(B)ACKGROUND MAP ASSOCIATIONS, <PROD-ID#> *
(O)VERLAY ASSOCIATIONS, <PROD-ID#> *
(C)URSOR HOME LOCATION ***, <LATITUDE> ***, <LONGITUDE>
<PASSWORD> **
  *Footnote:  Enters edit screen at this point.
 **Footnote:  To modify other categories.  (Extended Adaptation Data Menu.)
***Footnote:  Current value displayed if command ends at this point.
```

Figure 3.8-1

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Chapter 4

Extended Adaptation Data Parameters

4.1 Introduction

The extended adaptation data contains the adaptable parameters that are not routinely changed and therefore are protected by a password to prevent accidental modification by unauthorized personnel. Incorrect modification of these parameters could have a detrimental effect on PUP operations.

Some sections in this chapter contain numerically editable parameters for which an understanding of hexadecimal is paramount. This handbook will not supply detailed instructions for editing these parameters; however, additional reference materials that contain this information will be listed.

4.2 Overlay Precedences - Agency LOCA

When there is more than one overlay on a graphic product, the overlays are displayed with one overlay on top of another. Requesting several overlays may cause the obliteration of information from the overlays with lower precedence. The column on the left of this edit screen lists the overlays in descending order of precedence. The highest precedence overlay has pixel precedence over all other data.

```
                    PRECEDENCE OF OVERLAYS EDIT SCREEN
COMMAND:  AD,*****,P
FEEDBACK:
HIGHEST: |  3 |   Arrange overlay numbers in order of
         |  2 |   graphic screen precedence.
         |  4 |
         |  1 |   OVERLAY NUMBERS AND NAMES
         |  5 |   ------------------------
         |  8 |   1.  Hail Index                  9.  Combined Shear Contour
         | 10 |   2.  Mesocyclone               10.  Current Cross Section
         |  9 |   3.  Tornado Vortex Signature  11 to 16.  Not Defined.
         |  6 |   4.  Storm Tracking Information
         |  7 |   5.  Annotations
         |    |   6.  Alert Area #1
         |    |   7.  Alert Area #2
         |    |   8.  Severe Weather Probability
         |    |
         |    |
LOWEST:  |    |
```

Figure 4.2-1

4.3 Product to Color Mix Pairings - Agency LOCA

The product color selection menu defines the colors assigned to the color, gray, and hardcopy palettes for each product.

4.3.1 Color and Gray Scale

Upon selecting a product ID number and either the color or gray scale, the currently defined color or gray scale for the product selected will appear on the graphic screen along with a color selection menu. Three 2-digit hexadecimal values represent the intensity of the red, green, and blue components of the displayed color, respectively. Editing changes are performed with the puck and the graphic tablet.

```
                       EXTENDED ADAPTATION DATA MENU
COMMAND:  AD,*****,
FEEDBACK: EXECUTED – AD,*****,C,P,19,C,L
Enter command.
(P)RECEDENCE OF OVERLAYS *
(C)OLORS, (P)RODUCT, <PROD-ID#>, (C)OLOR SCALE, <screen> **
                                , (G)RAY SCALE,  <screen> **
                                , (H)ARDCOPY *
        , (S)AVE COLOR SELECTIONS
        , (C)ANCEL COLOR SELECTION MODE
(RCM) PARAMETERS *
(D)IAL IN OTHER USER LIST *
(R)PG LIST *
(N)ARROWBAND LINE DEFINITIONS *
(S)CIT AND HDA DISPLAY PARAMETERS *
(PASS)WORD CHANGE, <New Password>
NUMERICALLY EDITABLE DATA
 *Footnote:  Enters edit screen at this point.
**Footnote:  Enters color selection mode at this point.
```

Figure 4.3-1

4.3.2 Hardcopy Color Scale

Editing the hardcopy colors is performed at the alphanumeric terminal. Selecting the hardcopy option displays the Hardcopy Color Selection edit screen with the currently defined hardcopy colors. Three 1-digit hexadecimal values represent the intensity of the red, green, and blue components of the hardcopy color, respectively.

Note that the hardcopy colors are printed only when the graphic product is displayed in the color scale. Should a product be displayed using the gray scale, the corresponding gray shades will be used for the hardcopy. In the event that the gray scale defines alternate colors, avoid making hardcopies since these colors will automatically be converted to equivalent gray shades on the hardcopies.

```
                  HARDCOPY COLOR SELECTION EDIT SCREEN (ID= 19)
COMMAND:   AD,*****,C,P,19,H
FEEDBACK:
      RGB                                                          +---+
      ---                                           Hardcopy request
 1. | 0FF |                                                        +---+
 2. | 0AF |               Edit Screen Instructions:
 3. | 00F |
 4. | 0F0 |       Edit one hex digit (one of 16 possible values) each
 5. | 0C0 |       for the Red, Green and Blue color components for each
 6. | 090 |       corresponding level.
 7. | FF0 |
 8. | FC0 |       For a hardcopy of the edited colors, depress the HOME
 9. | F90 |       key followed by RETURN. HOME will position the cursor
10. | F00 |       onto the hardcopy request field. Edit mode is still
11. | D00 |       active after RETURN is depressed.
12. | B00 |
13. | F0F |       To save editing, depress RETURN while the cursor is not
14. | A5D |       in the hardcopy request field.
15. | 000 |
  ALERTS 1) GL VZ GR 2) GR
```

Figure 4.3-2

4.3.3 Additional Reference Material

For detailed instructions on changing the hexadecimal values in the product color selection menus, please refer to the following references:

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 13.2.3, WSR-88D Operational Support Facility, Norman, OK, 1996.

Andra, D., Preston, V., Quoetone, E., Sharp, D., and Spoden, P., 1994: An Operational Guide to Configuring a WSR-88D Principal User Processor, WSR-88D Operational Support Facility, Operations Training Branch, Norman, OK.

Color Scales for the PUP, WSR-88D Tales from the Hotline, 1996, WSR-88D Operational Support Facility, Operations Branch, Norman, OK. http://www.osf.noaa.gov/ops/2008.htm

4.4 Radar Coded Message (RCM) Parameters

This menu contains the RCM Edit Flag and the RCM Edit Warning Times. The RCM Edit Flag is under OSF control. At an RPGOP, this parameter must always be set to 1 which indicates the associated PUP may edit the RCM and return this version to the RPG. At all other sites, the RCM Edit Flag must be set to 0. The RCM Edit Warning Time is the value in minutes until the edit session deadline. Two warning messages will be received unless the operator desires only one warning message. To receive only one warning message, set the first and second warning times equal to each other. RCM editing is too time-consuming for daily operational use.

```
                      RCM PARAMETER EDIT SCREEN
COMMAND:  AD,*****,RCM
FEEDBACK:
Edit parameters and press RETURN to save changes.
               RCM EDIT       RCM EDIT
               1ST WARNING    2ND WARNING
EDIT RCM
FLAG*          TIME**         TIME**
   -              -              -
   1              5              1
*Note: EDIT RCM FLAG values are:
        0 - RCM from associated RPG may not be edited.
        1 - RCM from associated RPG may be edited.
**Note: RCM EDIT WARNING TIMEs are in minutes prior to end of RCM edit session.
        Valid range is 1 to 9 minutes. Time 1 must be larger than Time 2.
        (Edit session duration is determined at RPG).
```

Figure 4.4-1

4.4.1 Additional Reference Material

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 12.1 and Section 13.2.5, WSR-88D Operational Support Facility, Norman, OK, 1996.

4.5 Other User List - Agency LOCA

The Dial-in Other User List exists to support dial-in functionality to the PUP database. This is similar to the Other User list residing at the UCP. Each valid user will have an ID number and a password. A "Y" (for Yes) under Disconnect Override Privileges means a privileged Other User may enable the disconnect override feature following line connection.

```
             DIAL-IN OTHER USER LIST EDIT SCREEN          Page 1 of 1
COMMAND:  AD,*****,D
FEEDBACK:
(M)ODIFY, <LINE #>                        (D)ELETE, <LINE #>
(I)NSERT                                  (C)ANCEL ALL
Press function key F1 or F2 to exit and save all changes.
     OTHER   OTHER     DISCONNECT
     USER    USER      OVERRIDE
NO  ID #   PASSWORD  PRIVILEGES
--  ----   ------       -
--  ----   ------       -
```

Figure 4.5-1

4.5.1 Additional Reference Material

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 4.14.2 and Section 13.2.6, WSR-88D Operational Support Facility, Norman, OK, 1996.

4.6 RPG List

Every PUP has different dial-out communications requirements; therefore many of the specific entries contained in this section will **NOT** be the same as those at your local site.

The RPG list maintained by the PUP serves two important and distinct purposes. The first is to match RPG identification numbers with the four-letter RPG mnemonics. This cross-reference enables the PUP to recognize RPG "call letters" when entered at the graphic tablet or Applications Terminal and to provide the RPG mnemonics on product and status displays.

The second purpose is to define the RPG Port Password, RPG User Password, RPG Phone Number, and Override Disconnect privilege state for each RPG for which the PUP is authorized dial-in access. This information is provided by the OSF WSR-88D Hotline via NBComm fax each time PUP dial-out authorization is modified or associated parameters are changed. Should a site need a copy of this fax (to ensure having the latest information or if the fax gets misplaced), call the OSF WSR-88D Hotline and ask for the latest NBComm information.

NOTE: Dial-in access to individual RPGs is authorized by your Regional Focal Point (e.g. NWS NEXRAD Regional Focal Point(s) or HQ AWS/XOOS). Once access is approved, the WSR-88D Hotline provides the appropriate entries and instructions to the affected RPG and PUP site WSR-88D Focal Points for implementation.

NOTE

This section is provided for reference only, DO NOT MODIFY YOUR RPG LIST PARAMETERS TO REFLECT THE ENTRIES PRESENTED HERE.

```
                    RPG LIST EDIT SCREEN                Page 1 of 20
COMMAND:  AD,*****,R
FEEDBACK:
(M)ODIFY, <LINE #>                           (D)ELETE, <LINE #>
(I)NSERT                                     (C)ANCEL ALL
Press function key F1 or F2 to exit and save all changes.
 NO   RPG   RPG PORT  RPG USER  RPG                              OVERRIDE
      ID #  PASSWORD  PASSWORD  MNEM         PHONE #             DISCONNECT
 ---  ----  ----      ------    ----   ------------------------    -
 ---  ----  ----      ------    ----   ------------------------    -
  1     1   WFOS      OTBNWS    KDGG   1234567                     Y
  2   302   WFOS      OTBNWS    KJKK   1234567                     Y
  3   303   WFOS      OTBNWS    KJCC   1234567                     Y
  4   304   XXXX      XXXXXX    PMTT   1234567                     N
  5   305   XXXX      XXXXXX    KBHH   1234567                     Y
  6   307   XXXX      XXXXXX    KVPS   1234567                     N
  7   308   WFOS      OTBNWS    KGHH   1234567                     Y
  8   309   XXXX      XXXXXX    KTMM   1234567                     N
```

Figure 4.6-1

4.7 Narrowband Line Definitions

This list of narrowband lines defines the hardware implementation and intended use of the narrowband communications lines at the PUP, whether they are for the dedicated RPG, dial-out to RPG, dedicated to Principal User External Systems (PUES), dedicated to Other Users, dial-in from Other Users or not used. All ten lines on this edit screen must always be defined, even if they are not being used.

Some of these parameters are under OSF control. However, the baud rate, dial-in port password, other user distribution mode and maximum connect time in minutes are under Agency control. The baud rate should be set to match the switch setting on the hardware modem.

```
┌─────────────────────────────────────────────┐
│▓▓▓▓▓▓▓▓   ┌──────────────────┐   ▓▓▓▓▓▓▓▓   │
│▓▓▓▓▓▓▓▓   │      NOTE         │   ▓▓▓▓▓▓▓▓   │
│▓▓▓▓▓▓▓▓   └──────────────────┘   ▓▓▓▓▓▓▓▓   │
│                                              │
│  This section is provided for reference only,│
│  DO NOT MODIFY YOUR NARROWBAND               │
│  COMMUNICATIONS PARAMETERS TO                │
│  REFLECT THE ENTRIES PRESENTED               │
│  HERE.                                       │
│                                              │
└─────────────────────────────────────────────┘
```

```
                    NARROWBAND LINE DEFINITION EDIT SCREEN       Page 1 of 2
COMMAND:    AD,*****,N
FEEDBACK:
(M)ODIFY, <LINE#>                              (C)ANCEL ALL
Press function key F1 or F2 to exit and save all changes.
                                                     DIALIN   OTH USER  OTH USER
LINE     LINE     COMMS        LINE      BAUD    LINE    PORT     DIST    MAXCNCT
 NO      NAME     OPTION       CLASS     RATE    TYPE  PASSWORD* MODE**  MINUTES*
 --      ----     ----         -----     -----   ------- ----      -       ----
 --      ----     ----         -----     -----   ------- ----      -       ----
  1      J01        Y          ARPG      14400   DEDIC
  2      XXXX                  NONE
  3      J03        Y          NARPG     9600    DIALOUT
  4      XXXX                  NONE
  5      XXXX                  NONE
NOTE: Press F5 (HELP) for entry selection definitions. Press F2 to return.
* For Dial-In Other User Only        ** For Dial-In or Dedicated Other User
```

Figure 4.7-1

4.7.1 Additional Reference Material

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 4.14.2 and Section 13.2.8, WSR-88D Operational Support Facility, Norman, OK, 1996.

4.8 SCIT and HDA Display Parameters - Agency LOCA

The adaptable parameters for the Storm Cell Identification and Tracking (SCIT) algorithm, the Hail Detection algorithm (HDA), and the Tornado Detection Algorithm (TDA) define the storm cells, hail, and tornadic vortex symbols (TVS) that will be displayed at the graphic tablet. During active weather, the Storm Track Information (STI) product may become busy and difficult to interpret. Reducing the number of cells to display, or eliminating the past or future positions would alleviate the problem.

The four parameters for HDA control the minimum display thresholds and the symbol fill-in thresholds for the Probability Of Hail (POH) and the Probability Of Severe Hail (POSH). During active weather situations, raising the minimum display threshold will decrease the number of symbols on the product. The symbol fill-in threshold controls whether the symbol is an open green triangle or a solid green triangle by providing a specific percentage of occurrence. A user can disable (or not display) any open triangle by entering a "D" for the minimum display threshold.

```
              SCIT AND HDA DISPLAY PARAMETERS EDIT SCREEN
COMMAND:  AD,*****,S
FEEDBACK:
Enter the display parameters and press RETURN. Changes take effect immediately.
  SCIT        Number of cells to display (0 to 100): 20
              Display past positions? (Y or N)    :   Y
              Display forecast positions? (Y or N) :   Y
  HDA         Probability of Hail
                 Minimum display threshold (10% to 100%, or D*): 30  %
                 Symbol fill-in threshold (10% to 100%)       : 50  %
              Probability of Severe Hail
                 Minimum display threshold (10% to 100%, or D*): 30  %
                 Symbol fill-in threshold (10% to 100%)       : 50  %
        *Entering the letter D here will disable the display of this symbol.
  TVS         Display Elevated Tornado Vortex Signature?  (Y ot N): N
```

Figure 4.8-1

4.9 Password - Agency LOCA

This option in the Extended Adaptation Data menu allows the operator to select a new password. This password is required to access the Extended Adaptation Data menu and the Systems Option menu. If the password is forgotten, these menus will be inaccessible to the user. It is recommended that the password be recorded and kept in a safe place. If the password is lost, the Focal Point should call the OSF WSR-88D Hotline for instructions on how to find it.

```
                      EXTENDED ADAPTATION DATA MENU
COMMAND:  AD,*****,
FEEDBACK:
Enter command.
(P)RECEDENCE OF OVERLAYS *
(C)OLORS, (P)RODUCT, <PROD-ID#>, (C)OLOR SCALE, <screen> **
                                , (G)RAY SCALE,  <screen> **
                                , (H)ARDCOPY *
        , (S)AVE COLOR SELECTIONS
        , (C)ANCEL COLOR SELECTION MODE
(RCM) PARAMETERS *
(D)IAL IN OTHER USER LIST *
(R)PG LIST *
(N)ARROWBAND LINE DEFINITIONS *
(S)CIT, HDA AND TVS DISPLAY PARAMETERS *
(PASS)WORD CHANGE, <New Password>
NUMERICALLY EDITABLE DATA
 *Footnote:  Enters edit screen at this point.
**Footnote:  Enters color selection mode at this point.
```

Figure 4.9-1

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Chapter 5

System Configuration Parameters

5.1 Introduction

The PUP system configuration parameters define the operational characteristics of each PUP. These parameters identify the PUP hardware, task execution priority and loadshedding, and assign communications and display parameters. These are not routinely modified.

The system configuration parameters are the numerically editable adaptable parameters which must be changed carefully since any modification may adversely affect the PUP operations. Only supervisory or authorized personnel should change this data. To prevent any unauthorized personnel from accidentally modifying this data, these parameters are double password protected. Many of these parameters are under OSF LOCA and may not be changed. Others under Agency LOCA should not be changed without permission of the agency.

+--+
| **CAUTION** |
| |
| Caution is warranted; modifications to the |
| numerically editable parameters may have |
| a significant detrimental impact on the per- |
| formance and reliability of the PUP. |
+--+

5.2 Editing Protected Adaptation Data

Only qualified personnel with detailed instructions and/or a thorough understanding of the representation of the hexadecimal numeric system listed in each category should edit this data. A scientific calculator with decimal to hexadecimal conversion capabilities is required to edit these parameters. Edits made to some categories may adversely affect other system functions.

The data edit screen contains up to eight columns by eight rows of hexadecimal numbers, called halfwords. Each halfword consists of four hexadecimal digits.   The command to access the edit screens is: "AD,<password 1>,<password 2>, <category number>, <number of halfwords offset>". A discussion of the categories follows. Normally, the halfword offset will be 0 and the category would display from the beginning. However, for very large categories, selecting an offset of a higher number will display halfwords beginning with that number.   For example, category 12 contains 125 halfwords; in order to see halfwords 65-125, the offset number should be at least 62.

5.3 Radar Location (Category 1)

The radar location supplies the coordinates, in latitude and longitude, of the radar location for the associated RDA site. Halfwords 0-1 contain the latitude of the radar and halfwords 2-3 contain the

longitude of the radar, each multiplied by 1000 decimal. Positive values represent north for latitude and east for longitude. Negative values represent south for latitude and west for longitude.

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND: AD,*****,***,1,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                        Category # 1 Radar Loc.
            OFFSET    00    01    02    03    04    05    06    07
            ------   ----  ----  ----  ----  ----  ----  ----  ----
                0    0000  983F  FFFE  D15A
                8
               16
               24
               32
               40
               48
               56
```

Figure 5.3-1

5.4   Geographic Preset Center Location (Category 4) - Agency LOCA

The four halfwords in this category supply the coordinates, in latitude and longitude, of the geographic preset center display location. This is the location around which a product will be centered when the PRESET CENTER function is selected from the graphic tablet. This location should be the same as the RDA location. Offsets 0-1 contain the latitude of the preset center location and offsets 2-3 contain the longitude of the preset center location. Positive values represent north for latitude and east for longitude. Negative values represent south for latitude and west for longitude.

```
                NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,4,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                Category # 4 Preset Center Lat. Long.
           OFFSET   00    01    02    03    04    05    06    07
           ------  ----  ----  ----  ----  ----  ----  ----  ----
               0   0000  983F  FFFE  D15A
               8
              16
              24
              32
              40
              48
              56
```

Figure 5.4-1

5.5   PUP/RPGOP Flag (Category 5)

The PUP/RPGOP flag indicates whether the site is a PUP or an RPGOP. A zero in halfword 0 indicates the site is a PUP (0000) and a one in halfword 0 indicates the site is an RPGOP (0001). Halfword 1 is strictly a boundary alignment and should always read 0000.

```
                NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,5,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                 Category # 5 PUP/RPG-OP Flag
           OFFSET   00    01    02    03    04    05    06    07
           ------  ----  ----  ----  ----  ----  ----  ----  ----
               0   0000  0000
               8
              16
              24
              32
              40
              48
              56
```

Figure 5.5-1

5.6 PUP and Associated RPG Identification Numbers (Category 6)

This category defines the PUP identification number and assigns its associated RPG. Both numbers are entered in hexadecimal.

Halfword 0 defines the PUP's unique identification number. This number is used to identify the PUP to its associated RPG for product distribution and alerts and to nonassociated RPGs for dial-in authorization verification.

The associated RPG assignment for each individual PUP is made using halfword 1. This number is used by the PUP to distinguish associated RPG-derived products from those generated by non-associated RPGs. Additionally, this halfword defines the RPG for the DIAL-UP ASSOC RPG graphic tablet selection.

NOTE: The four-letter RPG identifiers are determined by the entries on the RPG List Edit Screen (see section 4.6).

```
                     NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,6,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                   Category # 6 PUP ID/ASSOC. RPG ID
          OFFSET    00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
              0    0003  012F
              8
             16
             24
             32
             40
             48
             56
```

Figure 5.6-1

5.7 Task Priorities (Category 8) - Agency LOCA

The program task priorities are used to determine the operating system priorities at which the product distribution and archive functions will run. Changes to this category can affect the time it takes for product distribution and archive if they are executing simultaneously. Halfword 0 contains the product distribution priority and halfword 1 contains the archive task priority. The range is from 1 to 2, with the highest priority being 1. The default setting for the product distribution priority is 1 and archive task priority is 2.

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,8,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                  Category # 8 Dist./Archive Priorities
            OFFSET    00    01    02    03    04    05    06    07
            ------   ----  ----  ----  ----  ----  ----  ----  ----
                0    0001  0002
                8
               16
               24
               32
               40
               48
               56
```

Figure 5.7-1

5.8 Hardware Implementation (Category 9)

Category 9 defines the communications and archive hardware currently implemented at the PUP. Halfword 0 defines the number of dedicated communications lines to the associated RPG, while halfwords 1-3 specify the number of communications lines to support PUP to RPG dial-out (nonassociated communications), dedicated PUES to PUP communications, and Other Users to PUP communications, respectively. The number of optical disk drives (Archive Level IV) is defined by halfword 4. Halfword 5 is not used and must read 0000.

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,9,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                   Category # 9 Hdw. Implementation
            OFFSET    00    01    02    03    04    05    06    07
            ------   ----  ----  ----  ----  ----  ----  ----  ----
                0    0002  0002  0001  0001  0001  0000
                8
               16
               24
               32
               40
               48
               56
```

Figure 5.8-1

5.9   PUES Distribution Product Priorities (Category 12) - Agency LOCA

The PUES distribution product priorities menu lists all product identification numbers and provides the distribution priorities for those products that are allowed to be distributed to PUES. Halfwords 0-124 are the valid halfwords for this category. Halfword 125 is used for boundary alignment and must remain 0000. Halfword 0 contains the number of products listed in this category. Do not edit this number. Odd number halfwords contain the product ID numbers and the subsequent even number halfwords contain the product distribution priorities. The priority of a product follows the product ID number. Permissible values for this category are listed in Table 5.9-1.

Table 5.9 - 1:

Table Entry	Permissible Range (decimal)	Halfword Offset (decimal)
No. Of Products	0 to 75 (0 to 4B hex)	0
Product ID	16 to 90 (10 to 5A hex)	1,3,5,7,...123
Distribution Priority	0 to 7 (0 to 7 hex)	2,4,6,8,...124

Note that a zero priority indicates that the product will not be sent. Highest priority is a one, which indicates that the product will be distributed before any other. Priority seven is the lowest priority.
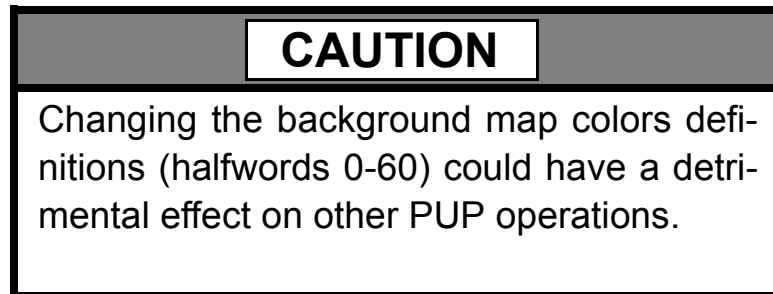
```
                     NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,12,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                   Category #12 PUES Prod. Priorities
          OFFSET    00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
              0    004B  0010  0005  0011  0005  0012  0005  0013
              8    0005  0014  0005  0015  0005  0016  0005  0017
             16    0005  0018  0005  0019  0005  001A  0005  001B
             24    0005  001C  0005  001D  0005  001E  0005  001F
             32    0005  0020  0005  0021  0005  0022  0005  0023
             40    0005  0024  0005  0025  0005  0026  0005  0027
             48    0005  0028  0005  0029  0005  002A  0005  002B
             56    0005  002C  0005  002D  0005  002E  0005  002F
```

Figure 5.9-1

5.10   Maps to Color Mix Pairings (Category 15)

The Maps to Color category assigns the graphic screen and hardcopy background map colors, in addition to a map to color index which indicates the color and texture of each map. Halfwords 0-31 define the background map colors used on the graphic screen for both full and quarter screen dis-

plays. Halfwords 40-59 define the colors used for a hardcopy of background maps. The first six-teen specify background map colors for a hardcopy of a full screen display, while the last four specify the colors for a quarter screen display. The OSF-controlled parameter, halfword 60, speci-fies the number of background maps. Finally, halfwords 61-140 select colors for the maps by assigning color numbers to specific map ID numbers.

CAUTION

Changing the background map colors defi-nitions (halfwords 0-60) could have a detri-mental effect on other PUP operations.

```
                   NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:   AD,*****,***,15,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                     Category #15 Map Colors
          OFFSET    00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
               0   0000  0000  90B0  00E0  B000  00A0  FFFF  00FF
               8   A0A0  00A0  C0C0  00C0  9060  00C0  FFFF  0000
              16   0000  0000  DD00  00EE  B080  0090  9000  00FF
              24   0000  0000  FF70  00C0  B990  00CC  0000  00EE
              32   0000  0000  90B0  00E0  B000  00A0  FFFF  00FF
              40   0FFF  000F  00F0  0000  0FFF  0333  0FB3  00FF
              48   0FFF  0883  0333  0F83  0FFF  00B0  0333  0F00
              56   0FFF  000F  00F0  0000  0014  0084  0003  FFFF
```

Figure 5.10-1

5.10.1 Additional Reference Material

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 13.3.9, WSR-88D Operational Support Facility, Norman, OK, 1996.

5.11 Special Symbol Font Definitions (Category 16) - Agency LOCA

This category provides definitions for the 64 special graphic symbols (characters) accessible through the graphic tablet. There are 64 sets of six halfwords, each set defining one graphic sym-bol. Graphic symbol number one, represented by halfwords 0-5, is located in the lower left of the tablet special symbol area.

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,16,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                   Category #16 Special Char. Font
         OFFSET    00    01    02    03    04    05    06    07
         ------    ----  ----  ----  ----  ----  ----  ----  ----
              0    C0C0  0000  0000  0000  0000  0000  E0E0  E000
              8    0000  0000  0000  0000  F0F0  F0F0  0000  0000
             16    0000  0000  3844  92BA  BA92  4438  0000  0000
             24    FE92  AAC6  82C6  AA92  FE00  0000  FEFE  C6C6
             32    C6C6  C6FE  FE00  0000  40C2  C6CC  7872  7EFC
             40    F000  0000  5030  1098  5432  1018  1400  0000
             48    FEFE  EEEE  FEFE  E0E0  E000  0000  4040  5C62
             56    4264  5800  0000  0000  0018  2440  4044  3800
```

Figure 5.11-1

5.11.1 Additional Reference Material

Operation Instructions Principal User Processor (PUP) Group: NWS EHB 6-531-1, Section 13.3.10, WSR-88D Operational Support Facility, Norman, OK, 1996.

Defining Special Symbols, WSR-88D Tales from the Hotline, 1996, WSR-88D Operational Support Facility, Operations Training Branch, Norman, OK.
http://www.osf.noaa.gov/ops/2013.htm

5.12 Graphic Tablet Selection to Function Assignments (Category 17)

Category 17 assigns the actual graphic tablet functions to the graphic tablet boxes. There are 297 halfwords in this category. Halfword 0 contains the number of boxes on the graphic tablet. Each box on the graphic tablet is assigned a box number. The tablet box number corresponds to the halfword offset (e.g., box number 1 is halfword offset number 1). The content of each halfword (1-296) is the function number assigned to that box. Each function number identifies the actual function to be performed or, in some cases, characters or symbols.

CAUTION

Changes to this category, intentional or accidental, would have a severe detrimental effect on the performance of the graphic tablet and the ability to display products.

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,17,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                  Category #17 G.T. Box Assignments
          OFFSET    00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
               0   0128  0103  00C1  00C0  0102  00BF  00BE  0101
               8   00BD  00BC  00B4  00BB  00BA  00B2  00B9  00B7
              16   00B6  00B1  0106  010C  00B5  00B3  010B  00B8
              24   00B3  00C6  00CD  00FD  00FE  00E0  0000  00F9
              32   0110  00EF  00EC  00EE  0112  00DB  00DD  00DE
              40   00DF  011C  00FB  00F8  010F  00F2  00F3  00ED
              48   0113  00D8  00D7  00AC  0124  00D9  00FC  0119
              56   00DC  00F0  00F1  00EB  00FA  00D2  00F6  00F7
```

Figure 5.12-1

5.13 Overlay Colors (Category 18) - Agency LOCA

The overlay colors category assigns the colors for each overlay displayed on the graphic monitors. Halfword 0 contains the number of overlays. Halfwords 1-11 contain the color definitions of the overlays, and halfwords 12-22 contain the blink state for each color assigned in halfwords 1-11. These colors have been carefully selected and should not be edited at the PUP.

CAUTION
Because of the interrelationships of these color definitions, editing may adversely affect PUP operations.

```
                NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,18,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                    Category #18 Overlay Colors
        OFFSET    00    01    02    03    04    05    06    07
        ------   ----  ----  ----  ----  ----  ----  ----  ----
             0   000B  8000  5F00  7800  7300  7F00  7C00  7000
             8   4C00  7C00  7000  4C00  8000  5F00  7800  7300
            16   7F00  7C00  7000  4C00  8000  8000  8000  0000
            24
            32
            40
            48
            56
```

Figure 5.13-1

5.14 Preselected RPGs (Category 23) - Agency LOCA

The Preselected RPGs category assigns three RPGs from the RPG List Edit Screen (AD,<password1>,R) to the RPG 1, RPG 2, and RPG 3 boxes on the graphic tablet. Usually, these will be neighboring RPGs from which products are frequently requested. Halfwords 0-2 contain the RPG identification numbers in hex that are used when RPG 1, 2, or 3 is selected from the graphic tablet. Halfword 3 is not used and should always be set to 0000.

```
                NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,23,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                    Category #23 Pre-selected RPGs
        OFFSET    00    01    02    03    04    05    06    07
        ------   ----  ----  ----  ----  ----  ----  ----  ----
             0   0139  015E  0001  0000
             8
            16
            24
            32
            40
            48
            56
```

Figure 5.14-1

5.14.1 Additional Reference Material

Pre-Selecting RPGs at the PUP Graphics Tablet, WSR-88D Tales from the Hotline, 1996, WSR-88D Operational Support Facility, Operations Branch, Norman, OK
http://www.osf.noaa.gov/ops/2012.htm

5.15 Overload Warning Thresholds (Category 24) - Agency LOCA

This category contains the percentage thresholds for processor, memory, communications, input buffer, storage, and archive measurements for performance monitoring. Upon reaching the overload warning threshold, a message indicating the overload will be generated and displayed. Halfwords 0-5 contain the thresholds for the six parameters in the order listed above. All six halfwords should have a default setting of 0064 hexidecimal (= 100 decimal).

```
                    NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,24,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                  Category #24 Overload Warning Thresh.
          OFFSET   00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
              0    0064  0064  0064  0064  0064  0064
              8
             16
             24
             32
             40
             48
             56
```

Figure 5.15-1

5.16 Maps to PUES and Other Users (Category 25) - Agency LOCA

This category contains the background map identification numbers of the background maps that are accessible to PUES and Other Users. Halfword 0 contains the total number of maps. Halfwords 1-18 contain the map identification numbers for maps accessible to PUES, and halfwords 19-37 contain the map identification numbers for maps accessible to Other Users.

```
NUMERICALLY EDITABLE DATA EDIT SCREEN
COMMAND:  AD,*****,***,25,0
FEEDBACK:
WARNING. Changes to Adaptation Data here may adversely affect PUP operations.
                     Category #25 PUES Maps
          OFFSET   00    01    02    03    04    05    06    07
          ------   ----  ----  ----  ----  ----  ----  ----  ----
              0    0003  00A4  009C  0098  0000  0000  0000  0000
              8    0000  0000  0000  0000  0000  0000  0000  0000
             16    0000  0000  0000  00A4  009C  0098  0000  0000
             24    0000  0000  0000  0000  0000  0000  0000  0000
             32    0000  0000  0000  0000  0000  0000
             40
             48
             56
```

Figure 5.16-1